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EXAMINER	
LE, EMILY M	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,674	SOKOLL, KENNETH K.	
	Examiner	Art Unit	
	Emily Le	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/20/06+3/17/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-10 and 12-75* is/are pending in the application.

4a) Of the above claim(s) *14-17 and 20-75* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-10,12,13,18 and 19* is/are rejected.

7)☒ Claim(s) *5,9 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/17/2006 has been entered.

Status of Claims

3. Claims 2-3 and 11 are cancelled. Claims 1, 4-10 and 12-75 are pending. Claims 14-17 and 20-75 are withdrawn from consideration for being directed to a non-elected invention. Claims 1, 4-10, 12-13 and 18-19 are under examination.

Specification

4. The disclosure is objected to because of the following informalities: Line 17 of paragraph [0064], which bridges page 22-23 of the specification discloses that the Luteinizing Hormone Releasing Hormone (LHRH) is described in U.S. Pat. No 5749551[54].

In the instant, the Office has reviewed the disclosure of U.S. Pat. No 5749551, and notes that the teachings of U.S. Pat. No 5749551 are not analogous to that of the claimed invention. U.S. Pat. No 5749551 is directed to a portable device to allow for simultaneous duplex printing and scanning on single pass machines. It appears that by U.S. Pat. No 5749551, Applicant intended U.S. Pat. No 5759551—as evidenced by the

citation provided for endnote number 54, disclosed on page 13 of the specification. If the presumption taken by the Office is correct, Applicant is required to correct the noted discrepancy. Appropriate correction is required.

Claim Objections

5. Claim 5 is objected to because of the following informalities: Claim 5 depends on claim 1. Claim 1 refers to an immunogen as a cationic peptide immunogen. In the instant, claim 5 refers to the cationic peptide immunogen of claim 1 as a cationic synthetic peptide immunogen. For consistency purposes, Applicant is required to consistently identify the immunogen as a cationic peptide immunogen or a cationic synthetic peptide immunogen, and not both. Appropriate correction is required.

6. Claims 9-10 objected to because of the following informalities: The claims contain an expression of alternatives that are presented using what appeared to be Markush-type language. The claims expressed the alternatives in the following format: selected from the group consisting of A, B **or** C. The format used in the claims does not correspond with the proper language for Markush groups. The proper Markush language is: selected from the group consisting of A, B **and** C. Hence, appropriate correction is required. Applicant may overcome this objection by revising the claims to recite the above-identified proper Markush language or drop the recitation "selected from the group consisting of" from the claims.

Additionally, claims 9-10 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous

claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The claims recite a dependency to claim 1. Claim 1 requires the CpG oligonucleotide to have 8 to 64 nucleotide bases. Claim 9, which depends on claim 1, requires the CpG oligonucleotide to have the formula: 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine); and X^2 is selected from the group consisting of C (cytosine) and T (thymine). Claim 10, which depends on claim 1, requires the CpG oligonucleotide have the following formula: 5'$(X^3)_2$CG$(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T.

In the instant, the formulas recited in claims 9-10 is directed to include a CpG oligonucleotide that is 4 and 6 nucleic acid residues in length. This inclusion fail to observe or incorporate the requirement set forth in claim 1, whereby the CpG oligonucleotide is required to have 8 to 64 nucleotide bases. Thus, the claims are objected for failing to further limit the number of residues present in the CpG oligonucleotide, as set forth in claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. The rejection of claims 7 and 18 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of Applicant's submission.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1, 5, 7-10, 12-13 and 18-19 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al.[1] in view of Ladd et al.,[2] as evidenced by result no. 1 of the rng and result no. 1 of the rag search summary pages.

The claims are directed at composition that is a microparticulate comprising a cationic peptide immunogen and an anionic CpG oligonucleotide. The claims require the peptide immunogen to comprise a target B cell antigen or a CTL epitope and a T helper cell epitope; have a net positive charge at a pH in the range of 5.0 to 8.0, which is calculated by assigning a +1 charge for each lysine, arginine and histidine; a -1 charge for each aspartic acid and glutamic acid; and a charge of 0 for all other amino acids in the cationic peptide immunogen. The claims require the anionic CpG oligonucleotide have a net negative charge at a pH in the range of 5.0 to 8.0; and be single-stranded DNA comprising 8 to 64 nucleotide bases with a repeat of a cytosine-guanidine motif, wherein the number of repeats of the CpG motif is in the range of 1 to 10.

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[1] Krieg et al. WO01/22972.
[2] Ladd et al. WO 94/25060.

Claim 5, which depends on claim 1, requires the net positive charge of the synthetic peptide immunogen be at least +2. Claim 7, which depends on claims 5 and 6, in the alternative, requires the net negative charge of the anionic oligonucleotide be at least –2. Claim 8, which depends on claim 1, further requires the CPG oligonucleotide to be 18-48 nucleic acids residues in length, and have 3 to 8 repeats of a cytosine-guanidine motif. Claim 9, which depends on claim 1, requires the CpG oligonucleotide to have the formula: 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine); and X^2 is selected from the group consisting of C (cytosine) and T (thymine). Claim 10, which depends on claim 1, requires the CpG oligonucleotide have the following formula: 5'$(X^3)_2CG(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T. Claim 12, which further limits claim 1, and claim 13, which depends on claim 12, specify that the nucleic acid sequence of the CpG oligonucleotide is SEQ ID NO: 1.

Claim 18, which depends on claim 12, requires the cationic peptide immunogen be a synthetic peptide that is conjugated to a T helper cell epitope. Claim 19, which depends on claim 18, specifies that the amino acid sequence of the cationic peptide immunogen is SEQ ID NO: 9.

Prior to the obviousness analysis, the following is observed:

It is noted that the nucleic acid sequence of SEQ ID NO: 1 is 5'TCGTCGTTTTGTCGTTTTGTCGTTTTGTCGTT-3', which is a single stranded DNA of 32 nucleic acid residues in length having 5 repeats of a cytosine-guanidine motif, and has a net negative charge of –32 at a pH in the range of 5.0-8.0. In the instant, the

number of cytosine-guanidine repeats is with the range that is instantly claimed, 1-10 and to 3-8. The number of nucleotide bases present in SEQ ID NO: 1 is within the 8-64 and 18-48 ranges set forth in the claims. SEQ ID NO: 1 is also in agreement with the formula 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine), and X^2 is selected from the group consisting of C (cytosine) and T (thymine). SEQ ID NO: 1 is also in agreement with the formula 5'$(X^3)_2$CG$(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T. And SEQ ID NO: 1 has a net negative charge of at least –2, as required by the claims.

SEQ ID NO: 9 is a cationic peptide immunogen comprising a CTL epitope and a T helper cell epitope, has a net positive charge of +4, and is synthetic peptide immunogen conjugated to a T-helper epitope.

Krieg et al. teaches a composition comprising an immunostimulatory nucleic acid and an anti-cancer therapy. [See claim 99] One of the immunostimulatory nucleic acid Krieg et al. teaches is an anionic CpG oligonucleotide. The anionic CpG oligonucleotide that Krieg et al. teaches has the sequence set forth in SEQ ID NO: 429. [Claim 101, and item 429 on page 46.] SEQ ID NO: 429 of Krieg et al. is 100% identical to the SEQ ID NO: 1 set forth in the claims. [See result no. 1 of the rng search summary page.] Thus, SEQ ID NO 429 of Krieg et al. is a single stranded DNA of 32 nucleic acid residues in length having 5 repeats of a cytosine-guanidine motif, and has a net negative charge of –32 at a pH in the range of 5.0-8.0. In the instant, the number of cytosine-guanidine repeats is with the range that is instantly claimed, 1-10 and to 3-8. The number of nucleotide bases present in SEQ ID NO: 429 of Krieg et al. is within the

8-64 and 18-48 ranges set forth in the claims. SEQ ID NO: 429 of Krieg et al. is also in agreement with the formula 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine), and X^2 is selected from the group consisting of C (cytosine) and T (thymine). SEQ ID NO: 429 of Krieg et al. is also in agreement with the formula 5'$(X^3)_2$CG$(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T. And SEQ ID NO: 429 of Krieg et al. has a net negative charge of at least –2.

And by anti-cancer therapy, Krieg et al. intends to encompass immunotherapeutic agents. [Lines 1-4 of page 15] In the instant, it is not readily apparent if the immunotherapeutic agents that Krieg et al. teaches are cationic peptide immunogens comprising a CLT epitope and a T helper cell epitope. However, Ladd et al. teaches an immunotherapeutic agent that is a cationic peptide immunogen comprising a CLT epitope and a T helper cell epitope. Ladd et al. refers to this cationic peptide immunogen as SEQ ID NO: 35. SEQ ID NO: 35 is 100% identical to SEQ ID NO: 9 set forth in the claim. [See result no. 1 of the rag search summary page.] Thus, SEQ ID NO: 35 of Ladd et al. is a cationic peptide comprising a CTL epitope and a T helper cell epitope, has a net positive charge of +4, and is synthetic peptide immunogen conjugated to a T-helper epitope.

Ladd et al. teaches that the cationic peptide immunogen is useful for regulating infertility and for treating prostatic hyperplasia, androgen-dependent carcinoma, prostatic carcinoma and testicular carcinoma in males. Ladd et al. also teaches that the cationic peptide immunogen is useful for treating endometriosis, benign uterine tumors,

recurrent functional ovarian cysts and premenstrual syndrome, and preventing or treatment of estrogen-dependent breast cancer in females. [Abstract]

Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to combine the teachings of Ladd et al. and Krieg et al. One of ordinary skill in the art at the time the invention was made would have been motivated to do so to treat prostatic hyperplasia, androgen-dependent carcinoma, prostatic carcinoma and testicular carcinoma in males; and treat endometriosis, benign uterine tumors, recurrent functional ovarian cysts, premenstrual syndrome, and prevents or treats estrogen-dependent breast cancer in females. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for doing so because Ladd et al. demonstrates that the immunotherapeutic agent identified as SEQ ID NO: 35 is useful for treating prostatic hyperplasia, androgen-dependent carcinoma, prostatic carcinoma and testicular carcinoma in males; and treating endometriosis, benign uterine tumors, recurrent functional ovarian cysts, premenstrual syndrome, and prevents or treats estrogen-dependent breast cancer in females.

11. Claims 1, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in view of Ladd et al., as applied to claim 1 above.

Claim 4, which depends on claim 1, requires the cationic peptide immunogen be a mixture of synthetic peptide immunogens. Claim 6, which further limits claim 4, requires the average net positive charge of the mixture of synthetic peptide immunogen to be at least +2.

The significance of Krieg et al. and Ladd et al., as it pertains to claim 1, is provided above.

In addition to teaching a cationic peptide immunogen having the same amino acid as that of SEQ ID NO: 9 recited in the claims, Ladd et al. also teaches the use of a mixture of synthetic peptide immunogens. Specifically, Ladd et al. teaches a mixture comprising the cationic peptide immunogen identified as SEQ ID NO: 35 with SEQ ID NO: 10. [Claim 20 of Ladd et al.] Furthermore, Ladd et al. also suggests the use of one or more peptide immunogens to reduce or suppress LHRH levels in a mammal. [Lines 26-35 of page 30]

Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a mixture of peptide immunogens. One of ordinary skill in the art at the time the invention was made would have been motivated to do so to obtain an efficient immune response toward the reduction or suppression of LHRH levels in a mammal. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for doing so because the determination of a workable, optimal or efficient condition is routinely practiced in the art.

Additionally, a mixture of synthetic peptide immunogens having the amino acid sequence of SEQ ID NOs: 10 and 35 would yield a net positive charge of at least +2. SEQ ID NO: 35 has a net positive charge of +4. SEQ ID NO: 10 has a net positive charge of also +4. The average of the two charges is at least +2.

Response to Applicant's submission

12. In response to the rejection of 1, 4-10, 12-13 and 18-19 under 35 U.S.C. 103(a) as being unpatentable over Krieg et al.[3] in view of Ladd et al.,[4] as set forth in the previous office action, Applicant submits:

a) Krieg et al. reports that pyrimidine rich (Py-rich) or TG nucleotides do not require CpG oligonucleotides and the surprising finding that nucleic acid sequences that do not contain CpG motifs are immunostimulatory themselves. And Krieg et al. also reports that pyrimidine rich or TG nucleotides alone are sufficient to provoke an immune response, thus, Krieg et al. that teaches away from the adding additional immunogens, including those that target B cell or CTL epitope and T helper cell epitope, in view of the effectiveness of the nucleotides alone for evoking an immune response.

This submission has been considered, however, it is not found persuasive. In the instant, and as summarized by Applicant, Krieg et al. reports that pyrimidine rich (Py-rich) or TG nucleotides do not contain CpG motifs are immunostimulatory themselves, and that pyrimidine rich or TG nucleotides alone are sufficient to provoke an immune response. However, this teaching does not translate to suggest or encourage one of ordinary skill in the art at the time the invention was made to exclude the use of the immunostimulatory properties accorded by the pyrimidine rich (Py-rich) or TG nucleotides with an antigen. It appears that Applicant has reached beyond what Krieg et al. has intended when Krieg et al. notes that pyrimidine rich (Py-rich) or TG nucleotides are sufficient to invoke an immune response. The immune response that

[3] Krieg et al. WO01/22972.

Krieg et al. refers to is generic immunostimulatory responses, not an antigen-specific response, like those that would be accorded by the administration of antigens. Furthermore, by expressing the unexpected discovery made for pyrimidine rich (Py-rich) or TG nucleotides, Krieg et al. notes that these nucleotides have immunostimulatory properties, like their CpG counterpart. However, again, this teaching does not translate to suggest or encourage one of ordinary skill in the art the time the invention was made to exclude a CpG motif from pyrimidine rich (Py-rich) or TG nucleotides. In the instant, Krieg et al. teaches the use of pyrimidine rich (Py-rich) or TG nucleotides as alternatives to nucleotides that solely rely on the presence of the CpG motif to provide immunostimulatory activities. And the courts have held that the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). Thus, while because Krieg et al. may have exuberantly expressed an unexpected discovery for nucleotides not having the CpG motif, Krieg et al. has not criticize, discredit, or otherwise discourage the use of nucleotides having the CpG motif. This is further evident by the nucleotide sequences that Krieg et al. teaches, particularly SEQ ID NO: 429 of Krieg et al. SEQ ID NO: 429 is a nucleotide sequence that is pyrimidine rich (Py-rich), has several TG motif, and also has several CpG motifs.

b) There is no motivation to use the peptide of Ladd et al. to form a complex with the CpG oligonucleotide of Krieg et al. because Krieg et al. teaches away from the

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[4] Ladd et al. WO 94/25060.

claimed invention. Furthermore, the co-administration of a CpG oligonucleotide and a leuprolide acetate does not form a complex as claimed. The claimed invention is a microparticulate complex, a chemical entity formed between the cationic immunogenic peptide and the anionic CpG oligonucleotide. Specific conditions are used to form this complex, see paragraphs [0128] to [0131] on page 43, page 45, Example 1 and Table 3 of the specification.

This submission has been considered, however, it is not found persuasive. As discussed above, Krieg et al. does not teach away the claimed invention as Applicant alleges. Additionally, Applicant is reminded that the cationic peptide immunogen that Ladd et al. teaches is a cationic peptide immunogen comprising a LHRH peptide, which comprises a CTL epitope, conjugated with a T helper epitope. The Office is not citing Ladd et al. for an LHRH agonist, leuprolide acetate. Thus, Applicant's reference to leuprolide acetate does not correspond with the claimed invention. Furthermore, while it may be true that co-administration of a CpG oligonucleotide and a leuprolide acetate may not result in the formation a complex as claimed, however, the formation of the complex is expected to be formed when an anionic CpG oligonucleotide is formulated with a cationic peptide immunogen in a pharmaceutical composition. In the instant, due to the charged nature of ingredients, a positively charged peptide and a negatively charged CpG oligonucleotide, present in the formulation of the pharmaceutical composition, complexation between the two ingredients would naturally flow from the knowledge that opposite attracts. This concept is further evidenced by Applicant's disclosure, particularly Figure 1 of Applicant's specification. In Figure 1, Applicant

shows that the microparticulate complex is made by simple mixing of the ingredients, a cationic peptide immunogen and an anionic CpG oligonucleotide in an aqueous solution. Thus, while Applicant asserts that specific conditions were used to form this microparticulate complex, the implementation of the specific conditions is not necessary for the formation of the microparticulate complex. Thus, Applicant's submission is not found persuasive.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 4-10, 12-13 and 18-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8, 10-11 and 16-18 of copending Application No. 10/335161. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The claims of the instant patent application are directed to a composition that is a microparticulate comprising a cationic peptide immunogen and an anionic CpG oligonucleotide; wherein the peptide immunogen to comprise a target B cell antigen or a CTL epitope and a T helper cell epitope; have a net positive charge at a pH in the range of 5.0 to 8.0, which is calculated by assigning a +1 charge for each lysine, arginine and histidine; a -1 charge for each aspartic acid and glutamic acid; and a charge of 0 for all other amino acids in the cationic peptide immunogen, and wherein the anionic CpG oligonucleotide have a net negative charge at a pH in the range of 5.0 to 8.0; and is single-stranded DNA comprising 8 to 64 nucleotide bases with a repeat of a cytosine-guanidine motif, wherein the number of repeats of the CpG motif is in the range of 1 to 10.

Claim 3, which depends on claim 2, which depends on claim 1, of the conflicting patent application is directed to a composition that is a microparticulate comprising a cationic peptide immunogen and an anionic CpG oligonucleotide; wherein the peptide immunogen to comprise a target B cell antigen or a CTL epitope and a T helper cell epitope; have a net positive charge at a pH in the range of 5.0 to 8.0, which is calculated by assigning a +1 charge for each lysine, arginine and histidine; a -1 charge for each aspartic acid and glutamic acid; and a charge of 0 for all other amino acids in the cationic peptide immunogen, and wherein the anionic CpG oligonucleotide have a net negative charge at a pH in the range of 5.0 to 8.0; and is single-stranded DNA comprising 8 to 64 nucleotide bases with a repeat of a cytosine-guanidine motif, wherein the number of repeats of the CpG motif is in the range of 1 to 10.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the cationic peptide immunogen to be a mixture of synthetic peptide immunogens, as required by claim 4 of the instant patent application. However, it is noted that claim 18 of the conflicting patent application does suggest the use of a mixture of synthetic peptide immunogens as the cationic peptide immunogen. Hence, it would have been prima facie obvious for one of ordinary skill in the art the time the invention was made to use a mixture of synthetic peptide immunogens as the cationic peptide immunogen.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not

require the cationic peptide immunogen to have a net positive charge of at least +2, as required by claims 5-6 of the instant patent application. However, it is noted that claim 4 of the conflicting patent application does suggest that the cationic peptide immunogen have a net positive charge of at least +2. Thus, it would have been prima facie obvious for one of ordinary skill in the art the time the invention was made to use a cationic peptide immunogen having a net positive charge of at least +2.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the anionic oligonucleotide to have a net negative charge of at least –2, as required by claim 7 of the instant patent application. However, it is noted that claim 4 of the conflicting patent application does suggest that the anionic oligonucleotide have a net negative charge of at least –2. Thus, it would have been prima facie obvious for one of ordinary skill in the art the time the invention was made to use an anionic oligonucleotide having a net negative charge of at least –2.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the CpG oligonucleotide to have 18-48 nucleotide bases and there be 3-8 repeats of CpG motif in the oligonucleotide, as required by claim 8 of the instant patent application. However, it is noted that claim 6 of the conflicting patent application does suggest a CpG oligonucleotide having 18-48 nucleotide bases and there be 3-8 repeats of CpG motif in the oligonucleotide. Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a CpG

oligonucleotide having 18-48 nucleotide bases and there be 3-8 repeats of CpG motif in the oligonucleotide.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the CpG oligonucleotide to have the formula: 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine); and X^2 is selected from the group consisting of C (cytosine) and T (thymine), as required by claim 9 of the instant patent application. However, it is noted that claim 7 of the conflicting patent application does suggest that the CpG oligonucleotide have the formula: 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine); and X^2 is selected from the group consisting of C (cytosine) and T (thymine). Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a CpG oligonucleotide having the formula: 5'X^1CGX^2 3', wherein X^1 is selected from the group consisting of A (adenine), G (guanine) and T (thymine); and X^2 is selected from the group consisting of C (cytosine) and T (thymine).

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the CpG oligonucleotide to have the formula: 5'$(X^3)_2$CG$(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T, as required by claim 10 of the instant patent application. However, it is noted that claim 8 of the conflicting patent application does suggest that the CpG oligonucleotide have the formula: 5'$(X^3)_2$CG$(X^4)_2$ 3', wherein X^3 is A or G, and

X^4 is C or T. Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a CpG oligonucleotide having the formula: 5'$(X^3)_2CG(X^4)_2$ 3', wherein X^3 is A or G, and X^4 is C or T.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the anionic CpG oligonucleotide to have the sequence set forth in SEQ ID NO: 1, as required by claims 12-13 of the instant patent application. However, it is noted that claim 11 of the conflicting patent application does suggest an anionic CpG oligonucleotide having the sequence set forth in SEQ ID NO: 1. Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use an anionic CpG oligonucleotide having the sequence set forth in SEQ ID NO: 1.

The difference between the claims of the instant patent application and the conflicting patent application is: Claim 3 of the conflicting patent application does not require the cationic peptide immunogen to have the sequence set forth in SEQ ID NO: 9, which is a synthetic peptide that is conjugated to a T helper cell epitope, as required by claims 18-19 of the instant patent application. However, it is noted that claim 17 of the conflicting patent application does suggest cationic peptide immunogen to have the sequence set forth in SEQ ID NO: 9. Thus, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a cationic peptide immunogen having the sequence set forth in SEQ ID NO: 9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

15. No claims are allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Le whose telephone number is (571) 272 0903. The examiner can normally be reached on Monday - Friday, 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce R. Campell can be reached on (571) 272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily Le 6/05/06
Patent Examiner
Art Unit 1648